Appendix A. Pre-Designated Roles (Step #1: Assigning the Teams)

At the beginning of the course, students were assigned roles for each journal club. Positions rotated throughout the semester to allow students to work with different peers and to provide equal coverage across leadership and supporting (figure) analysis roles. Distributing the figures ensured equal coverage and decreased the burden on an individual student to address what could otherwise be an unfamiliar topic. Primary roles include group leader; assistant group leader; background (context of study within the body of knowledge); Figure 1, 2, 3, etc.; and assessment team (peer assessment).

TABLE 1

Pre-designated roles for written analysis and in-class discussions.

Name	Journal club #1	Journal club #2	Journal club #3
Smith, Emily	Background	Assessment	A/group LDR; Figure 1
Jones, Eric	Group LDR; Figure 1	Background	Assessment
Watson, Mike	Figure 1	Group LDR; Figure 1	Background
Collins, Leon	Figure 2	Figure 1	Group LDR; Figure 1
xxxx	Figure 3	Figure 2	Figure 1
xxxx	Figure 4	Figure 3	Figure 2
xxxxx	A/group LDR; Figure 1	Figure 4	Figure 3
xxxxx	Assessment	A/group LDR; Figure 1	Figure 4

Note. Each student was pre-designated a specific portion of the article for the preclass homework and assigned a role for in-class discussions. The group leader (group LDR) and assistant group leader (A/group LDR) analyzed Figure 1 and were responsible for orchestrating and managing in-class actions, including keeping groups on time. Assessment members addressed Figure 2 in their preclass assignments and observed in-class preparation and class dynamics for peer assessment of the 10 available points. Background members analyzed Figure 3 in their written analysis and presented an overview of what is known in the field and where this study fits into the body of knowledge during the in-class portion.

Appendix B. Preclass Written Analysis Prompts (Step #2: Preclass Assignment and Assessment)

The preclass assignment was an individual effort due at the beginning of the scheduled class period, when the oral discussion would occur. This assignment was divided into five categories: background, methods, results, discussion, and conclusion. This organization teaches students the format of a scientific paper and ensures that everyone arrives with the necessary understanding to contribute to meaningful discussions. The prompts and recommended point values are shown below. Each student prepared written responses to these questions, based on their pre-designated role, and submitted them at the beginning of the in-class discussion.

I. Background

(1 point) a. State the complete citation for the article.
(2 points) b. State the objective of the study and hypothesis.
(1 point) c. Briefly state why the issue/study is important.
(2 points) d. In your own words, summarize what is currently known about this topic, as mentioned by the authors or through additional citations.
(1 point) e. Who sponsored (funded) the study, and does this present any potential conflicts of interest?

II. Methods

(1 point) a. Describe the study design and methodology used (e.g., a double-blind case control, prospective cohort, retrospective, randomized clinical trial, etc.).
(1 point) b. What was the size of the study, and how were subject(s) selected? (inclusion/exclusion criteria, sample size, random arm assignment)
(1 point) c. What were the measurable outcome(s) or endpoint(s)?
(1 point) d. State the type(s) of statistical analysis performed and why these were chosen.

III. Results

I have been assigned to analyze Figure/Table # _____

(2 points) a. What is the main idea of the figure, and how does it support the experimental design? Hint: State the objective of the figure and the type of assay(s) involved.
(2 points) b. How does this figure answer or support the research question?
(2 points) c. Was the experimental approach to answering the question appropriate? Explain why or why not.
(1 point) c. Explain why this figure is vital to conveying the desired message. For example, could they make their claim without this figure?

IV. Discussion

(2 points) a. Based on the results, briefly summarize one main point discussed by the author(s).
(2 points) b. From the data, what did the researchers conclude?
(2 points) c. How does the conclusion relate to their original hypothesis?

V. Conclusion

(2 points) a. What is one strength of the article? Explain (e.g., is this an alternative approach or technique or a reasonable target for intervention; was there a clear difference in outcomes, etc.).
(1 point) b. What is one limitation of the article? Explain (e.g., small sample size, no observable differences, sample selection bias, study design, etc.).
(2 points) c. How does this work contribute to the body of knowledge? Who would be interested in reading this article (target audience)?
(1 point) d. State one question that you would pursue to further research this topic.

Appendix C. In-Class Assessment Rubrics (Step #3: In-Class Assessment)

The in-class portion of the journal club provided an opportunity for students to present their respective portion of the article to the class. The group leader and assistant provided initial instructions to the class (approximately 2 minutes), allowed initial time for the groups to finalize their plan of action (approximately 5 minutes), and started with the background material (approximately 5 minutes). The remainder of the class allowed for groups to present each figure and respond to questions. These in-class presentations were scored by the pre-designated assessment team as noted in Appendix A, Table 1. This student team used the rubric (Appendix C, Table 1) to grade their peers. Briefly, 10 points for group leaders and assistants were scored on their oral presentation of Figure 1 from 0 points (none); 1 point (marginal); 2 points (average) or 3 points (high); time management and providing classroom guidance to their peers on a similar scale; and 0 points or 1 point for their ability to address questions from the audience. The background team was charged with presenting a succinct overview of the field and the research question; an overview of experimental approaches used within the paper; and an explanation of the importance of the study. Teams for each figure/table stated the goal of the figure/table; described the technique(s) used; interpreted the results; and addressed experimental validity. The in-class scores were assigned from an average of those determined by the student assessment team. The assessment team scores were then tabulated based on the quality and thoroughness of their assessment, as shown in below:

The student peer assessment team scores each student on their in-class performance in their pre-designated role. The peer assessments are averaged and reflect the score that faculty enter as the in-class grades. The assessment team, while not having a clearly defined speaking role, is scored by the faculty on their ability to fairly and accurately assess their peers' performance: no (0 points), minimal (1 point), average (2 points), and excellent (3 points).

Influencing assessment team scoring encourages the honest evaluation of peers and minimizes everyone receiving 10 points on the in-class portion. If desired, a force distribution of points is possible. For example, for a peer-evaluator to obtain 5 points for their ability to distinguish minimal, marginal, and excellent contributions, then no more than 20% of the class can score 10 points, 20% maximum can score 9 points, and so forth. The objective is to carefully evaluate peers' performance within their designated roles. In the case where a student gives everyone 10 points, they would receive 0 points for their ability to rate peer presentations.

TABLE 1

In-class assessment.

Name	Duty	(0-3 points)	(0-3 points)	(0-3 points)	(0-1 point)	Total points
	Group leader; Fig 1	Oral presentation	Time management	Classroom/dialogue management	Answer questions	
	A/Group LDR; Fig 1	Oral presentation	Time management	Classroom/dialogue management	Answer questions	
	Background	Overview of field	Research question	Experimental approach	Address "so what"	
	Figure/Table	Goal of figure	Technique description	Results; validity	Response to questions	

Name		(0-5 points)	(0-5 points)	
	Assessment	Quality & thoroughness of assessment	Distinguish minimal, marginal, excellent contributions	
	Assessment	Quality & thoroughness of assessment	Distinguish minimal, marginal, excellent contributions	

Note. The student assessment team assigned 10 possible points to presenting classmates. Assessors used the rubric to facilitate point designations. The assessment team, while not having a clearly defined speaking role, is scored by the faculty on their ability to fairly and accurately assess their peers performance, with no (0 points), minimal (1 point), average (2 points), and excellent (3 points) assigned accordingly.